



**ATES ENVIRONMENTAL PROTECTION AGENCY**

March 9, 2016

Mr. Anthony R. Brown  
Environmental Manager  
Atlantic Richfield Company  
4 Centerpointe Drive, LPR 4-435  
La Palma, CA 90623-1066

**Re: EPA comments on the Progress Report and Response to Comments on the Draft Final On-Property, Off Property and Reference Area Focused Remedial Investigation (FRI) Work Plan-Plant and Habitat-Related Soil Investigations, Leviathan Mine Site, Alpine County, California; dated November 16, 2015**

Dear Mr. Brown,

The US Environmental Protection Agency (EPA) has reviewed Atlantic Richfield Company's (ARC) Progress Report and Response to Comments on the Draft Final On-Property, Off Property and Reference Area Focused Remedial Investigation (FRI) Work Plan –Plant and Habitat-Related Soil Investigations, Leviathan Mine Site, Alpine County, California, dated November 16, 2015. This work was submitted to EPA pursuant to Administrative Order for Remedial Investigation and Feasibility Study, Leviathan Mine, Alpine County, California (CERCLA Docket No. 2008-18, June 23, 2008).

Background:

On March 20, 2015 ARC delivered the Technical Memorandum: Habitat Surveys, Plant Species, and Study Design for Plant Sampling, and on April 7, 2015 ARC delivered the Draft On-Property Focused Remedial Investigation Work Plan and Off-Property Area Focused Remedial Investigation Work Plan Plant and Habitat-Related Soil Investigations for the Leviathan Mine Site in Alpine County, California. On May 18, 2015, EPA provided comments on both the technical memorandum and the draft submittal, and directed ARC to proceed with sampling within the next 14 days. ARC initiated plant and habitat related soil sampling activities 30 days later; on June 15, 2015.

EPA's May 18, 2015 comments directed ARC to

- incorporate reference area plant and habitat related soil sampling into the revised work plan, and
- To implement opportunistic sampling to maximize the likelihood that target plants would be identified and sampled from appropriate locations.

On June 19, 2015 ARC delivered the Draft Final On-Property, Off Property and Reference Area Focused Remedial Investigation (FRI) Work Plan –Plant and Habitat-Related Soil Investigations. The response incorporated reference areas into the plant and habitat related sampling program; and indicated that opportunistic sampling would be conducted. The response included ARC's proposal that a plant species would not be collected if two samples could not be obtained in reference areas, or from site affected areas.

On September 22, 2015; EPA and ARC held a meeting to discuss the progress of plant sampling. On October 16, 2015 EPA provided the written comments that clearly stated

- That ARC's approach was not acceptable to EPA. Clearly noting that if a target plant is found in potentially site affected areas, but not observed in reference areas, the information should still be obtained by collecting and analyzing the plant to provide useful information. EPA directs ARC to ensure that the plant sampling approach includes sufficient flexibility to ensure samples are collected in areas that are potentially site affected even though two occurrences of the plant may not be observed in the reference streams.
- EPA also requested a status update on plant sampling efforts.

On October 20, 2015, during the EPA and ARC monthly status call EPA again clarified the request for an update on the 2015 plant collection status and further requested submittal of a schedule for completing the plant sampling during the next 2016 season.

On November 16, 2015, ARC provided two tables to document plant collection progress in 2015. Of the 22 plant species:

- Nine of the species were completed at all three areas (On-Property, Downstream Study Area [DSA], and Reference Area).
- Five plant species were not collected due to inability to collect 2 reference samples within the designated areas. Although at least three of these five species were observed outside the floodplain.
- Two species were not observed in any of the areas.
- Three species were observed in all study areas. It is unclear why the sampling effort was too late in the growing season to collect these species.
- One species was observed, but not in sufficient quantities to form a sample.
- Two species were partially collected and require completion of either On-Property or Down Stream Study Area (DSA) sample collection.

EPA has completed its review of the November 16, 2015 submittal and provides the following comments:

- **Comment 1:** Please revise the DQOs to include the following if/then statement: "If sufficient data are not obtained to calculate a site-specific uptake factors, then literature values will be used to calculate plant exposure concentrations in the ecological risk assessment."
- **Comment 2 Schedule:** EPA's October 16<sup>th</sup> letter requested that ARC provide a schedule for 2016 to ensure that all plant sampling is completed in the 2016 season. **ARC Response:** ARC has provided the requested schedule. **EPA Response:** The actual growth and flowering periods can fluctuate in response to local environmental factors such as timing of snow melt. ARC shall monitor field conditions and ensure that field teams are sampling during the proper season for each of the remaining plant species. If necessary to identify seasons and locations, ARC should work with the Washoe Tribe of Nevada and California. ARC should ensure full and complete final plant sampling during 2016. EPA understands that the schedule is contingent on site conditions including timing of snow melt, and amount of precipitation. ARC notes that per EPA direction, plant species or plant components not completed in 2016 will not be attempted in 2017. To clarify, EPA has not directed ARC to avoid sampling during 2017, rather, EPA expressed the goal for ARC to complete plant sampling during 2016. Should plants remain not sampled after the

2016 field season; EPA will determine if there is a need to conduct additional plant sampling efforts in 2017.

- **Comment 2: Sampling Size:** EPA's October 16<sup>th</sup> letter clearly noted that ARC's proposal to omit collection of a plant species, if fewer than two samples could be obtained from reference areas was not acceptable. **ARC Response:** ARC argues that analyzing the DSA and On-Site samples if two reference samples have not been collected will not result in information that will fulfill the data quality objectives (DQOs):
  - Relational comparison of soil metal concentration to plant tissue concentration [plant uptake factor]; and (2) Comparison of metal concentrations of On-site, DSA, and Reference area samples.

ARC also argues that using nearby unaffected areas that are not listed on the reference sampling area to collect species and co-located root zone soils may result in rejection of the data during data usability analysis. **EPA Response:** While collecting samples from the previously selected reference areas is preferred, EPA does not agree that the collection of reference plant and collocated root zone soil samples from unaffected areas outside of the previously identified reference areas would be detrimental to subsequent evaluations. The collection of both plant and soil samples will provide a relational correction and would not jeopardize the development of a quantitative model to predict a plant uptake factor.

To again clarify: if insufficient tissue of a targeted plant species is observed within the previously identified reference areas, ARC shall opportunistically collect plant tissue from outside of the designated reference areas in areas unaffected by former mining activities. For example, in 2015 when cattails were not found in the identified reference area, ARC should have collected cattail tissue and collocated root zone soil in another unaffected area near the site such as Doud Creek. Additionally, if pinyon pines are not found within the previously defined reference areas, EPA directs ARC to collect plants from other upland areas outside of the site-affected reaches of Bryant Creek.

- **Overall Eco Risk Assessment Schedule:** As discussed in various comment letters, ARC shall conduct the sampling and data usability to ensure that both the ERA and HHRA risk assessments are completed in parallel, for inclusion in the final RIFS Report. EPA feels this approach is reasonable, used at other sites such as the Anaconda Site (Yerington, Nevada), and consistent with the 2009 Proposed Work plan.

Further, EPA concurs with and repeats two comments for ARC to address:

- **Regional Board's April 23, 2015 letter regarding ARC's March 20, 2015 Technical Memorandum, Comment No. 1. Page 14, Section 5.3** – It appears that the sampling methodology for the habitat verification surveys was modified between 2012 and 2013. It is unclear from the text why the sampling methodology was changed between years and study areas and how this change will affect the study results. Text from this section states, "This may be explained by a difference in methodology as the transects conducted in the earlier study extended across the entire riparian zone, rather than only along one side, and may have been biased toward capturing higher shrub densities (e.g. willow thickets) along the creek." Please clarify the reason for changing the methodology for habitat verification surveys and how this potential bias will be addressed.

- **Washoe Tribe's April 22, 2015 memorandum reviewing ARC's Aprils 7, 2015 Work Plan Comment No. 6. Appendix A: Data Quality Objectives ON-PROPERTY STUDY AREA DQOs SUMMARY No. 8 BIOASSESSMENT INVESTIGATIONS – As of 04/07/2015 Step 6: Specify Acceptance Criteria states: “Professional judgment supported by statistical methods will be used to evaluate data using a multiple lines of evidence approach to assess spatial and temporal trends and variability in the data.”**

This approach does not meet the objectives of EPA guidance on DQO development (U.S. EPA, 2000, Data Quality Objectives Process for Hazardous Waste Site Investigations EPA QA/G-4HW Final, EPA/600/R-00/007 January 2000).

**EPA directs ARC to provide a line-by-line response to these comments and also provide a revised and updated SAP within thirty (30) days or by April 9, 2016. This field work should begin as soon as the 2016 Field activity season can be underway.**

If you have any questions, please feel free to contact me at (415) 947-4183 or [Deschambault.lynda@epa.gov](mailto:Deschambault.lynda@epa.gov).

Sincerely,

A handwritten signature in cursive script that reads "Lynda Deschambault". The ink is dark and the signature is fluid, with the first name "Lynda" being larger and more prominent than the last name "Deschambault".

Lynda Deschambault  
Remedial Project Manager

Cc by electronic Email:

Douglas Carey, California Regional Water Quality Control Board, Lahontan Region  
Lynelle Hartway, Washoe Tribe of Nevada and California  
David Friedman, Nevada Department of Environmental Protection  
Kenneth Maas, United States Forest Service  
Tom Maurer, United States Fish and Wildlife Service  
Toby McBride, United States Fish and Wildlife Service  
Steve Hampton, California Department of Fish and Wildlife  
Marc Lombardi, AMEC